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THE "OLD HORSE TRAFFIC" BOGY STILL BEING ACTIVELY WORKED.

If, as an Editor of over twenty years' experience, one did not know a little about the ways of the sensational press writer, one would wonder why he (or she) would write such "romance"; but what one does express amazement at is :—why the Editor of a reputable paper passes such stuff for publication without first inquiring as to whether it is true—or anywhere near the truth ?

It is not fair either to the readers of the paper or to the reputation of the paper itself.

As will be remembered the inaccuracies of the present endeavour to promote a newspaper campaign on the misnamed "Old Horse" or "Decrepit Horse" Traffic were exposed in the last issue of the Veterinary Journal by the publication of the dignified reply sent to the Press from the Ministry of Agriculture. The Royal Society for the Prevention of Cruelty to Animals also took the matter up; and, as Sir Robert Gower, M.P., the Chairman of the Council, promised to have the *Daily Express* accounts sifted, the general public (and the veterinary profession in particular) await the fulfilment of his promise.

The *Leicester Mail* is at present receiving correspondence, caused by the following paragraph, which recently appeared in its issue of the 13th May :—

"HORSE EXPORT CRUELTY

"'No horse is too thin or too miserable for the sausage factory,' said Miss Cole, in the course of an address to the Leicester Rotary

Club on the cruelty attending the export of English horses to the Continent for slaughter. Horses were still being exported at the rate of from 150 to 200 a week, and they often had to endure much hardship on the journey, besides being slaughtered in a cruel way "
and on the 26th May there appears a whole column letter from Miss Cole admitting that the veterinary inspection on this side " is excellent," but as it is written under headlines in big black type as " The Traffic in Old Horses," " Ghastly Cruelties to our Faithful Animal Friends " (not one tittle of which can be demonstrated), it is calculated to give the readers the impression of most dreadful and diabolical cruelties.

Such misstatement of facts ought to be an offence punishable by law ; for not only is it dishonest, but it is prejudicial to the reputation of the British nation in the eyes of a critical and somewhat sarcastic foreign audience. If one hundredth part of the insinuations can be proved we deserve all the opprobrium thrown over us, but the direct and quiet denial recently given in Parliament by the Minister of Agriculture shows that England is still deserving of the high standard it used to profess, in regard to its name for humanity towards animals.

On the 21st May the Minister, the Rt. Hon. Noel Buxton, is reported in the *Times* to have stated in his reply to numerous questions : " In regard to the export of horses for slaughter, a good deal of misrepresentation had prevailed. The law prohibited the export to the Continent of any horses that were not fit to work without suffering, and the requirements were very rigidly observed." If the law is being broken, or not effectually carried out, the officials and members of any humane society have only to find the evidence and report it to the proper authorities. It is their duty to stop these " Ghastly Cruelties," and this would be a worthy object for which to collect money from the kind-hearted—but, if they do not exist, the collection of such funds and their distribution ought to be made the object of a Government Inquiry, and the balance sheets subjected to the closest scrutiny.

Justice is justice ! And the Ministers of the Crown, together with their permanent staff, have enough to worry them without having to controvert false statements ; and in this matter of the inspection of horses for transportation across the seas our Veterinary Colleagues on the Staff of the Ministry of Agriculture may rest assured that they have the whole of their brother members solidly behind them.

General Articles

SOME THOUGHTS ON CANINE SUBJECTS.

By G. MAYALL, M.R.C.V.S.,
Bolton.

Do dogs have *hysteria ?* One would rather expect so. Their descent and race are greatly varied. Hereditary traits and temperaments are inherited. Sexual indulgence is frequently curtailed or abolished. The manifestations of hysteria in the human subject are declared by loss of power in a limb, or fixation of it in a strange position, or there may be areas of skin insensitive to touch or parts of the body where the slightest touch of the skin causes pain. One does not seem to get the choking sensation, and as if a ball was rising in the throat, in the dog, or if we do, the dog does not give us any plain signs of it.

Recently, however, I have had two canine cases that have puzzled me. Both have occurred in intelligent, well behaved mongrel dogs of bull terrier size and type. One was brought to me about 6 months ago and both hind feet were raw and bleeding from scratching the ground. The animal was panting and disturbed, but the pain which the friction of his feet on the ground must have caused was hardly expressed at all, and it seemed as if the hind limbs were insensible, but quite usable. An examination of the legs showed nothing adherent nor anything to account for the action so I concluded that he felt some inability of a nervous origin in the legs and was trying to shake and scratch it off. I bandaged both hind feet up firmly, using an antiseptic dressing and fixing the bandages with adhesive paste. I gave him a Dial tablet and told the owner to give him one on each of the following days. The bandages remained on for three days, and were then taken off, and the dog has remained well since.

A few days ago a second dog with a good deal of the bull terrier in him was brought to me, showing similar symptoms to the first one. The claws of the off hind foot were scratched to the " quick " and bleeding, and on putting him on the table he yelled with agony when the feet were touched. Here there seemed to be hypersensitiveness of the limb. I dressed the parts with a local anæsthetic and bandaged the limb up with a fixation bandage ; administering a Dial tablet, and sent one to be given next day. He soon got quiet, although greatly distressed when first seen. He had a good night's sleep and seemed quite normal next day. In this case also nothing abnormal could be seen to cause the prolonged and continued scratching on the ground.

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Canker of the ear is a common disease in the dog which is largely preventible. Dogs with erect ears seldom seem to suffer from it, because owners can probably see promptly when they are dirty and filthy and the air circulates freely in the ear cavity of a stand up. In the case of a lop-eared dog, secretions and dirt and old soap suds may lie forgotten, air circulation is limited and favours decomposition of *débris* and the owner seldom or never looks into the ear cavity until the dog shows signs of irritability or pain by shaking the head or scratching. As regards treatment of such ears, there has been much interesting discussion and debate, and many words have been spoken at numerous veterinary meetings for quite a long time. And yet, what does the matter really resolve itself into ? Is it not that careful and scrupulous surgical cleanliness should be adopted ? One can clean up better where one can see than where one is working in the dark, and therefore, I am rather surprised that the use of the electric lamp or torch is not more frequently mentioned as a help in the treatment of dirty ears, and ear diseases, than it is. It is my practice to look into them and if I find a high degree of soreness and sensitiveness, I use a hazeline and boracic ointment with perhaps a few drops of carbolic acid in it. I then wipe the ear out with a wad of cotton wool and then go over the depths and the corrugations of the ear with a Volkmann's scoop, working gently and methodically. It is wonderful what a collection of muck you can get out of a dog's ear by this method. Occasionally some ears are so painful that it is merciful to apply a local anæsthetic before working on them. I do not think it is either advisable or necessary to pour weird and wonderful concoctions into dogs' ears as is frequently done by the laity. To make the inside of the ear clean, pliable, comfortable and soft, and free from discharge, liquid, sores, and *débris*, is the object to be aimed at.

ABNORMALITIES AND MALFORMATIONS.

By S. M. WOODWARD, M.R.C.V.S.,
Birmingham.

A case was brought to me some years ago of a cart colt with two well formed feet on one leg, both in contact with the ground and able to bear weight. It was sold to a showman who exhibited at Edgbaston St., Birmingham. He shaved the tail and left a tuft at the end and with the use of some dyes exhibited the subject as a " Cow-Horse." It made quite a lot of money for the showman. I possess, preserved in spirit, twin pigs joined together at the sternum. They were sent to me from the market as being unique, the sow having

experienced no difficulty in farrowing. They were the sixth fœtus out of the litter.

Some time ago I was called to a peculiar case at Toc. H. A cat had had her kittens in a box containing chaff for packing eggs. The kittens, four in number, were inseparable, being united by the umbilical cords of each kitten, joining a larger membrane which had been retained by the tabby and become tied round her hock. A doctor friend of the Padre's was called in as she had licked the membrane and tightened it so much that it had caused the leg and foot to swell. After freeing the cat's leg he had a look at the kittens and advised the calling in of veterinary assistance. When I arrived I found the kittens all bunched together and rolling over like a ball. I found the chaff had caused a crassamentum around the short cords and ligaturing was impossible. I cut the cords with scissors and liberated each of the kittens but they all died within 24 hours. The cat recovered but it has always remained a mystery to me how the kittens were born.

I am attending a stud of black horses where there is a black cat. He has seven toes on each front foot all in contact with the ground, and a well developed talon to each toe. He walks quite normally but the size of the feet are of course remarkable. The hind feet are normal. Abnormalities and malformations among dogs are comparatively rare in my experience.

LIGHT THERAPY IN THE TREATMENT OF HORSES.

By COLONEL DR. CASIMIR ZAGRODZKI,
Chief of the Polish Army Veterinary Service, Warsaw, Poland.

THE beneficial influence of sunlight on the organism was well known to the ancients. Egyptians, Greeks and Romans employed the exposure to the sun as a method of treatment for men and in order to maintain the bodily health.

Light therapy has only been used recently for the treatment of animals. Considerable work has been done in U.S.A. on the prevention and treatment of rickets in fowls. Frick, Bullard, Patton, Perry, Sieber, Scherer, Wieser, Wirth, Jordanoff, Hollstein, Müller, and others reported excellent results with radiation in the treatment of canine distemper and other diseases of dogs; during the great war, Dalkiewicz used the ultra-violet rays in the treatment of wounds and mange in horses; Stachurski treated the wounds of horses; in 1926 Dr. Eckert reported his work with ultra-violet radiation and radiant heat therapy in the treatment of horses.

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The work of these investigators and practitioners shows that there appears to be a wide-open field for radiation in the treatment of animals ; although more limited than that of men.

I want in this paper to report the results of my investigations, which I undertook with a view to prove the value of radiation in the treatment of horses.

In this work a considerable number of horses was used ; 41 more characteristic cases I described in my work, " Phototherapy in Veterinary Medicine," published in *Przeglad Weterynaryjny*, Nos. 11, 12, 1929, Lwów, Poland.

The work here reported is far from being complete and it is carried on further in the Army Veterinary Laboratory and in the Army Veterinary Experimental Clinic in Warsaw.

Effects of Ultra-Violet Radiation on the Skin of Horse.

Eckert, Gasparius suggested that the pigmentation and the hair-coat of the horse's skin renders the penetration of ultra-violet rays difficult and even impossible. In order to facilitate the penetration they administrated the ultra-violet radiation to the bare skin.

Further, Perthes and Henkel transmitted the ultra-violet rays through the cuts of pigmented skin, used as filters, and received the action on the skin of men and dogs.

In order to prove whether the pigmentation of the horse's skin has any influence on the biological action of ultra-violet rays, I made the tests on several groups of horses, according to their colours—grey, roan, chestnut, bay, dark bay, etc.—distinguished by contents of the pigment in the skin.

The method of radiation adopted in these tests was as follows:

The areas of skin (45 × 50 cm.) in the left and right costal regions or in regions of the flank, were bared by administration of depilatory drugs (*a*) Bar. sulf., Zinc oxyd., Farin., aa ; (*b*) Stront. sulfur., Calc. sulfur., Bol. alb. subtil., aa. These drugs were administrated 24 hours before application of radiation.

The lamps used were : Jenicke lamp (German), operated at 220 volts and 3 amp., and Victor lamp (American), operated at 220 volts and 10 amp., with rectifier for alternating current ; both quartz mercury vapour arc lamps.

The exposure was given to the left area ; the right area served as controlling one.

During five days one 30-minute exposure at the distance of 20-30 cm. was applied every day, except third day—it gives four exposures for a horse.

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The radiation produces various degrees of erythema, subsequent swelling and even blistering, followed by desquamation of the radiated area.

After each exposure the reaction of the skin increased gradually ; the intensity of the reaction was not the same in all cases, but varied from the evident to the very strong and prominent one, depending upon the sensitiveness of horse's skin.

The skin of different horse races, types and even of different regions of horse's body varies greatly in its sensitivity to the rays.

The erythema lasts for 2-5 days after radiations ; the swelling, decreasing gradually, remains till 14-20 days, and the desquamation 3-4 weeks.

The growth of hair on the radiated area of skin is more rapid and intensive than on the controlling area.

The 30-minute exposure at the distance of 40-45 cm. given in above mentioned way produces a quite evident skin reaction, although less intensive than at the distance 20-30 cm.

From the results of these tests it would appear that the normal skin of the horse responds to ultra-violet radiation nearly in the same way as the skin of man.

That means that the pigmentation gives no serious obstacle to the action of ultra-violet rays. It is probable that the negative results obtained by Dr. Eckert, Gasparius and others, who reported that the pigmented horse's skin, even bared, does not respond to the ultra-violet radiation, were due to the using of lamps of unsatisfactory efficiencies.

The hair-coat of horse's skin absorbs all ultra-violet rays, so that they do not reach the surface of the skin.

The exposure of the haired skin to the radiation is useless ; the skin must be bared.

Effects of General Actinotherapy on the Horses.

The general actinotherapy means the exposure of large areas of the skin for obtaining the therapeutic results by the indirect action of ultra-violet rays.

I have mentioned above that the ultra-violet rays penetrate the skin, even as pigmented, as the horse's skin ; they reach the depth of a few tenth parts of a mm., and are absorbed ; they do not penetrate the more deeply laying tissues and organs and their direct action on them is excluded.

Ledic and Saidman believe that the ultra-violet rays produce the changes in the electric equilibrium of the living cells and subsequent changes in their biological activities. This electronic theory of the

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physiological effects of ultra-violet energy is very important and has found practical application in the efforts to influence the deeply laying organs and tissues by so-called " inhalation of the ionized air."

The ionized air (correctly the ionized dust of air) carries the electrical charge into these organs and tissues and causes the changes in electric equilibrium of their cells.

In spite of this opinion Spolverini affirms that the inhalation of the ionized dust of air is a main factor in the actinotherapy and that merely by these inhalations without radiation on the skin he received satisfactory results in the treatment of rickets in children.

To augment the contents of the dust in the air, both investigators used the artificial dispersion of the substances, which easily submit to the ionization (compounds of calc., phosphor., iron, etc.).

I think that this method of radiation may be adopted in veterinary medicine for the general treatment of horses and other animals.

Effects of Ultra-Violet Radiation on the Infected Wounds of Horses.

I applied the ultra-violet radiation in a great number of cases in the treatment of infected wounds of horses ; the results were very impressive and permit to ascertain that the ultra-violet radiation is an important therapeutic agent in these cases.

One of the important things to recall is the energetic influence of ultra-violet rays on the necrotic tissues, whose vital functions are enfeebled, or which reveal the tendency to the necrosis.

The necrotic tissues are separated very rapidly and accurately; the enfeebled tissues adjacent to the necrotic foci are stimulated very strongly and become sound and vigorous ; this double process of separation and stimulation can be accomplished only in such a biological way ; no surgeon is able to perform such a separation, when every living cell of the injured tissues is separated from necrotic one ; in consequence, the necrotic processes, even showing tendency to to extend are localized very rapidly.

The necessary condition for beneficial effects in these cases is the possibility of direct radiation on the feeble tissues ; the radiation on deeply laying covered foci is ineffective.

The influence of ultra-violet radiation on the excretion of the wound is very characteristic ; the excretion changes rapidly its appearance and nature ; after few radiations the purulent excretion, even very abundant, becomes gradually more and more clear, transparent and turns finally pure serous ; the quantity of excretion decreases very rapidly ; in the treatment of wounds by ordinary methods I have never observed a healing with as little excretion.

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The cicatrice obtained in treatment by ultra-violet radiation is generally different from this, obtained by other methods—it is very little, soft and tender and does not cause the diminishing of functional abilities of tissues.

I could not use the ultra-violet radiation in the cases of necrotic processes in the bone tissues, because it needs special high power apparatus for local radiation possessing auxiliaries for concentrating the ultra-violet rays on the limited area.

I recommend a mild ultra-violet radiation on the sterile surgical wounds ; these wounds after radiation are healed in the shorter time than those non-radiated.

The biological action of ultra-violet rays is very complex ; they stimulate the cellular growth, raise the resistance of tissues, strengthen their vital functions, accelerate the proteolitic processes, debilitate and even partially kill the harmful bacteria of infected wounds.

Dosage.

The dosage of ultra-violet rays depends upon several factors.

Basing on my experiments I can recommend, as a guidance, the following dosage of ultra-violet rays for the local actinotherapy :

(1) Very strong dose, applied only in order to receive the destructive effects on the injured tissues : distance 10-20 cm., time 10-20 minutes ;
(2) Strong dose : distance 20-30 cm., time 10-30 minutes ;
(3) Moderate dose : distance 30-50 cm., time 10-30 minutes ;
(4) Mild dose : distance 50-70 cm., time 10-30 minutes.

Quartz mercury vapour arc lamps were used : Jenicke (German) lamp, 3 amp., 220 volts, operated upon direct current Victor (American) lamp 10 amp., 220 volts, operated upon direct current ; Bach's lamp, 7.5 amp., 120 volts, operated upon alternating current.

When carbon arc lamps are used, the dosage must be 40-50 per cent. stronger.

For general actinotherapy I used the doses as follows :

(1) Very strong dose : distance 20-30 cm., time 30 minutes ;
(2) Strong dose : distance 40-45 cm., time 30 minutes.

The lamps as above, except Bach's lamp, which is too weak in radiation intensity for local actinotherapy.

In the human medicine the mode of dosage for general actinotherapy is already established ; on the contrary, the dosage for local actinotherapy is not yet generally accepted ; there are numerous methods of radiation : some investigators repeat the radiation every 2-3 days, others every day ; Saidman and others use the repeated radiations in the same day.

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In my investigations I changed the frequency and intervals of radiations in individual cases, according to the conditions of injured tissues and the therapeutic effects obtained.

It is generally believed that the dose must gradually diminish according to appearance of positive effects of the treatment.

My experimental ultra-violet radiations on bacteria show that in certain cases it is possible to obtain the same results using repeated radiations with intervals of several days, or with several hours intervals in the same day if the quantity of energy was the same in both cases ; only careful clinical observations can explain this question in relation to the cells of living tissues.

I think that in the cases of strongly infected wounds it is very useful to apply in the beginning of treatment 2-4 radiations daily and then to modify the doses and frequency of radiations according to the effects obtained.

Effects of the Heat—and Luminous and Heat Radiation on the Horses.

The heat-and luminous rays are a composition of various rays of visible part of spectrum, beginning from first visible violet rays (3600A-4000A) and going through all regions of visible spectrum till the infra-red region (7700A and over) ; the heat rays indicate the infra-red rays (over 7700A).

The penetrating power of these rays is very high : they penetrate the skin, reach more and more deeply laying tissues and organs, and even pass through entire body (Dufestel) ; the strength of their penetrating action is depending upon their wave-length.

The experiments which I undertook with heat-and luminous and heat radiation show that the heat-and luminous rays give more satisfactory results than the heat rays in treatment of infected wounds and other lesions.

The treatment of infected wounds by the heat-and luminous radiation is distinctly successful and profitable ; the heat-and luminous rays accelerate blood circulation in injured tissues, which produces the phenomenon of " biological washing " of these tissues ; the stream of fluids runs from the depth to the surface, removing the pus, the products of deterioration of tissues and the bacteria of infected wounds ; the removal is performed very rapidly, that is, in few tens of minutes.

Besides this mechanical action, the " biological washing " causes also excitation and reinforcement of all biological functions of cells of the injured tissues—and that is very important.

The heat-and luminous radiation has very little or no effect on necrotic tissues and in such cases the ultra-violet radiation is preferable.

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In cases of various inflammatory processes the heat-and luminous or the heat radiation, used in convenient doses, gives very successful results ; in my investigations I received rapid positive effects in the acute rheumatic processes ; in the old chronic inflammatory processes I failed in my endeavours to procure exacerbation and subsequent healing, due, I think, to using of lamps of unsatisfactory activities or to the errors in the handling.

The dosage of the heat-and luminous or heat (infra-red) rays varies very greatly, depending upon the effects which we intend to obtain ; generally are used 1-2 hours radiations at the distance, which excludes the injury of the skin by heat.

In the treatment of wounds and not too deeply laying, wide, superficial inflammatory processes, I used the ordinary electric incandescent 25-32 candle lamps with red, blue, green bulbs and with suitable reflectors ; Miller's burners were also used.

The heat-and luminous and heat radiation should be omitted in the cases of fresh injuries with respect to danger of hæmorrhage due to energetic dilation of vessels and to stimulation of circulation.

Effects of the Rays of Visible Part of Spectrum on the Organism.

The visible spectrum is the desquamation of white light in a range of colour groups of the wave-length between 7700A to 3600A.

We have no apparatus producing the separate colour groups of visible spectrum ; therefore we must use the special filters, which permit the passage of certain wave-lengths, or groups of wave-lengths and inhibit the passage of others ; the filters may be : colour glasses, liquids enclosed in quartz or in glass, etc. The filtering method is very troublesome and imperfect.

The biological properties of the rays of visible part of spectrum are very little explored or quite unknown.

The blue rays possess the characteristic ability to produce a local anæmia due, may be, to the high constriction of vessels ; this anæmia is so evident that it can be used for local anæsthesia of tissues (Dufestel).

The pain softening action of blue rays is also one of their beneficial properties.

Furthermore the blue rays raise the vital functions of tissues, accelerate the purification of wounds, stimulate the proteolitic processes, etc., just as the other rays of middle part of visible spectrum.

The red rays possess the antagonistic action to that of ultra-violet rays ; moreover they have evident influence on inflammatory foci, restraining energetically and softening the symptoms of inflammation.

The therapeutical properties of the green, yellow, and orange rays are not yet sufficiently explored.

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Conclusions.

The light therapy, as a solar therapy, actinotherapy, radiant heat-and luminous and heat therapy, can be used in the treatment of horses and ought to find wide uses in this treatment.

It would appear that light therapy is not a panacea ; it is only a valuable therapeutic factor, a therapeutic sensible tool, which prudently used, gives wonderful results, but which, on the contrary, in the inexperienced hands, becomes harmful.

Although the method of application of light therapy is till now empirical, the mode of operation is not fully understood, the equipment very expensive and unsuitable, there are serious indications that the light therapy in the treatment of horses will gain a foothold on a solid basis.

Much work remains to be done before the radiations could be recommended for wide use of the veterinary therapist, but I think that already now the light therapy of horses can be used in such veterinary establishments and institutes, as veterinary university or private clinics, army veterinary hospitals, etc.

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Clinical Articles

Tuberculosis in a Gelding, No Reaction to the Double Intradermal Test.

By H. S. CALDWELL, M.R.C.V.S., D.V.S.M.,
Newcastle-under-Lyme.

SUBJECT: Clydesdale gelding, about 8 y.o.

History. He has worked in a town for a few years; the driver says that he was a good worker but "short-winded."

March 24th. Taken off duty owing to loss of appetite. Condition rather poor; tucked up; temp. 104° F.; pulse fairly slow; breathing more quickly than normal, and an occasional cough.

March 26th-28th. Appetite variable, sometimes absent, at other times good. Temp. 103-4° F.; losing flesh very rapidly; breathing shallow and rapid. Tuberculosis suspected. Permission to test obtained. No stiffness of the neck.

March 29th. First dose intradermal tuberculin in the near side of the neck. Skin fold measurement 5 mm. Temp. 103° F.

March 31st. Second injection. Skin fold 7 mm. No heat or tenderness at the site.

April 1st. Completion of test; result negative. Skin fold 8 mm.; no heat or tenderness, the horse taking no notice of manipulation of the site of injection.

April 3rd-11th. The gelding becoming extremely weak. Temp. remaining 103-4°; respirations rapid; loss of flesh marked; slight nasal discharge, mucoid and colourless; appetite sometimes quite good; fæces hard, until salines were prescribed. He has not been down since the commencement of the illness and is now very shaky on his legs and can scarcely walk and has become a typical clinical picture of tuberculosis.

April 12th. Dropped down and died.

Post-Mortem.

(1) Miliary tuberculosis involving the whole of both lungs, there being practically no unaffected lung tissue;
(2) One typical tuberculosis growth in the spleen the size of a golf ball;
(3) A tuberculosis mass as large as a football involving the mesenteric glands consisting of numerous old caseous foci and abscesses;
(4) A similar mass involving the renal lymphatic glands.

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Microscopical examination of smears from each site revealed acid-fast bacteria in enormous numbers as usual in equine tuberculosis.

DISCUSSION.—It is common to find negative reactions in cattle that are saturated with tuberculosis and this seems to be a parallel case in the horse.

Fasciola Hepatica Linnæus 1758 in the Lungs of Cattle.

By A. W. NOEL PILLERS, F.R.C.V.S.,
Municipal Veterinary Department, Liverpool.

EARLY in January this year Mr. K. D. Downham, B.V.Sc., M.R.C.V.S., showed me a fluke egg which he had discovered in the lung of a bovine from North Yorkshire. In a lesion which he gave me I found several eggs. The diseased area was a cavity about the size of a filbert nut, with calcified walls, it was just under the pulmonary pleura and contained a brown syrup-like liquid in small amount; no flukes were present. Since the importation of cattle from Canada has been allowed there has arisen the chance of introducing the giant lung fluke (*Fasciola magna* Bassi 1875); it has already been recorded from Europe and was probably brought in in this manner. However, after measuring several of these eggs, it became evident that they were those of the *Fasciola hepatica*, the common liver fluke. On looking up the subject in Neumann (1) there was a good account of the condition, taken apparently from a paper by Morot of the Troyes abattoir, France. He found 101 cattle affected with lung lesions out of 2,458 examined (a little over 4 per cent.). Nearly all the animals were over five years old. The further remarks there given with regard to other records from the lungs of other hosts are somewhat vague, because the term distomata is used. One gathers, however, that *F. hepatica* has occasionally been found in the lungs of sheep.

On communicating with Mr. H. L. Torrance, M.R.C.V.S., D.V.S.M., he informed me that he knew the condition quite well and that his records showed a definite percentage of bovine lungs condemned on account of the presence of "fluke abscess." He kindly forwarded me three batches of lesions from several beasts. The first two parcels which consisted of eleven hardened areas were all negative, but in the third I found several portions of lung with young flukes in the slaty brown material in the centre of the lesions; usually one fluke was present in each cavity, but in some there were two. The largest were 15 mm. in length and 6 in breadth; many were much smaller. Although no parasites were found in the first two groups of specimens, I consider

they were similar to those in which immature flukes were seen. Several of the worms were cleared and compared with forms of similar sizes from the livers of sheep. There appeared to be no points of difference ; the anterior cone was very prominent and morphologically the specimens leave no room to doubt that they were young forms of *Fasciola hepatica*.

Mr. King Shaw, M.R.C.V.S., of Wallasey, who has unique facilities, kindly examined the lungs of some hundreds of imported sheep which suffered from liver rot, without finding any pulmonary lesions ; he however, stated that he believed he had seen the condition, without however demonstrating the presence of the parasite.

References to this condition are rare in current English veterinary literature, but Kimura, Taguma and Wada (2) have given an account of the pathology of the disease in Japanese cattle.

Several points of interest are raised by the finding of flukes in unusual situations ; amongst these one may mention the route taken by the parasite, and questions of *intra vitam* and *post mortem* diagnosis. During the last few years there has been a great increase in the number of recorded cases of *F. hepatica* infestation in man. The parasites have been found in the liver, lungs, blood vessels and under the skin. Hutyra and Marek (3) state " A few of the young flukes may also penetrate the hepatic veins, be carried into the right heart and the lungs and from there into other organs. Thus in pregnant animals they may also reach the liver of the fœtus by way of the placental circulation." The final step in the passage from parent to fœtus is, however, an active one. Others have seen flukes in the livers of newly born animals. Many helminthologists are therefore of the opinion that the lung is reached by way of the blood stream from the liver. Although there is no experimental proof of this, the above findings lend more support to it than to the direct migration theory, which has many adherents.

The small size, and the fewness of the lesions render the chances of them being diagnosed in the living animal very small, and the fibrous nature of the cyst wall makes it most unlikely that the eggs would be encountered in the sputum. Liver rot is not rare in cattle affected with tuberculosis, so that some attention should be paid to the lungs when such cases are being dealt with under the Tuberculosis Order, in order to prevent confusion of the lesions.

The following account of the route taken by the fluke, the lesions, and their prevalence in cattle has been kindly written by Mr. Torrance. His experience is considerable and shows that about 2 per cent. of cattle with " flukey " livers also have lesions in the lungs.

After very careful *post-mortem* examinations of a very large number of bovines affected with fluke, I am quite satisfied that

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the theory of direct migration cannot be substantiated; when flukes are found in other organs than the liver they have in my opinion been carried there by the blood stream. The young flukes enter the hepatic veins and are carried to the right side of the heart, whence they reach the lungs in the venous blood. Apart from the lungs and in two cases the mediastinal lymphatic glands I have never found flukes in any organ than the liver. This is not surprising if the blood stream theory is correct, because the young flukes would be carried towards the terminal branches of the pulmonary artery until the lumen of the vessel became too small for their further progress. Once they have reached the lung it is quite conceivable that occasionally a few very young ones might find their way to the mediastinal lymphatic glands via the lymphatic vessels. The above quoted two cases appear to bear this out.

It is perhaps strange that similar pulmonary lesions are not more often found in sheep. Without any experimental evidence to support my views I think this is due to mechanical reasons, viz. that the lumen of the hepatic veins in the sheep is not sufficiently large to admit the young flukes or stated conversely when they arrive at the hepatic veins in cattle they can enter and pass down them, but at the same age they are too large to travel down the sheep's veins. Having reached the lungs as described, the young flukes develop, become adult and lay eggs. As time goes on they undergo degeneration, the parasites first and eventually their eggs, till all that remains inside the gritty lined capsule is a greenish brown granular looking cheesy substance.

There may be a single lesion or any number up to twenty; this is the largest number I have seen. They are generally scattered irregularly throughout the lung tissue and vary in size from that of a filbert nut to that of an orange. They are most frequently detected when situated at or near the margins of the lungs, but the reason for this is that they are more obvious in that position. Unless lesions can be seen or readily palpated, it is not customary to make multiple incisions into the lungs for their detection. If this were a routine procedure where distomatosis of the liver exists, the incidence of pulmonary lesions would no doubt be found to be much higher than present-day teaching indicates.

Pulmonary lesions are always secondary to fluke infestation of the liver, and I have only found them when the liver showed evidence of an extensive and heavy invasion.

When the young flukes become lodged in the lung tissue, a small area of inflammation develops around them. If as a result of the invasion, numerous lesions are formed and distributed irregularly throughout the lungs, a definite parasitic broncho-pneumonia is estab-

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lished. A capsule is gradually formed round the flukes. At this stage the contents of it consist of immature flukes and a brownish syrupy looking liquid with a suggestion of a dark green colour. Later eggs are found in the capsule. It is quite common to see fibrous tissue stretching across the cavity, in some cases almost complete partitions are formed, dividing it into compartments. As time progresses, the "lining" of the capsule becomes quite gritty and deeply stained. Eventually the contents from absorption and degeneration become converted into a greenish brown granular cheesy substance in which neither flukes nor eggs can be detected. The following table shows the number of cattle slaughtered and the number of livers and lungs condemned as unfit for the food of man as a result of fluke infestation at the abattoir, Woodside Lairages, Birkenhead, for three years.

Year.	No. of cattle slaughtered.	Livers condemned.	Lungs condemned.	Percentage of lungs condemned to cattle slaughtered.	Percentage of lungs condemned to livers affected.
1927	65,619	9,934	222	.33	2.23
1928	73,244	8,656	184	.25	2.12
1929	68,170	11,463	225	.33	1.96

As a routine examination of each beast slaughtered was not practised the table does not give an exact indication of the extent to which Irish cattle are infested by liver flukes.

(1) Neumann, G. L. and J. Macqueen. Parasites and Parasitic Diseases of Domesticated Animals. London. 1905. p. 493.
(2) Kimura T., Taguma and Wada, Y. The Pathological Anatomy of the Bronchiectic Cavity of Cattle in Japan (*Fascioliasis pulmonium s Bronchiectasis parasitica*). *Sei I Kivai Medical Journal* 1926. Vol. 65, No. 5, pp. 1-7, 2 plates. English summary.
(3) Hutyra, F. and Marek, J. Special Pathology and Therapeutics of the Domestic Animals. 2nd Edition. London. Vol. II, p. 475.

Calcium Chloride in the Treatment of Relapsed Milk Fever.

By R. C. G. HANCOCK, B.Sc., M.R.C.V.S.,
Beaconsfield.

THE following cases of Milk Fever in which remarkable results have occurred as a result of intravenous injection of Calcium Chloride in solution may prove of interest in view of the note on use of Calcium Gluconate in the March and April numbers of THE VETERINARY JOURNAL.

The solution used is 10% strength and 12 ounces is given as a dose. I employ an ordinary douche can, five feet of rubber tubing, and a male fitting to take a No. 16 $1\frac{1}{4}$ inch exploring Record needle. A clip just above the needle holds the fluid back in the rubber tube until the needle has found the vein, when the tube is at once connected, the clip removed and the fluid allowed to run in at its own speed, the douche can being elevated as high as possible. When short handed, it can be hung ready on a nail at a convenient height in the shed. Out of doors a pitchfork is a useful implement to hang it on.

The first case was a 4th calf Jersey. The day following the uneventful birth of the calf, the cowman noticed the cow was constipated, and came for a drench. Two hours later (25 hours from calving) I was sent for.

25/1/30.	2.30 p.m.	Cow staggering but not down. Udder inflated. Hot packs to loins.
	5 p.m.	Cow up and feeding. $\frac{1}{2}$ lb. Mag. Sulph. given.
26/1 30.	6 a.m.	Cow down, comatose. Udder inflated.
	9 a.m.	Cow down, a little better than at 6 a.m. 40 grams glucose in 20% solution given hypodermically. Embrocation and hot pack to loins.
	12.30 p.m.	Cow still comatose.
	3.30 p.m.	Cow much worse, breathing stertorous, unconscious. 12 oz. 10% Calcium Chloride solution given intravenously. Within five minutes a remarkable change occurred, cow became quite conscious and started to feed.
	5.30 p.m.	Cow still down, dreamy, but conscious when disturbed. 1 gr. of strychnine given hypodermically.
	9.30 p.m.	Cow still down, conscious and making attempts to feed.
27/1/30.	12.30 a.m.	Urgent call. Cow very violent. Collapsed soon after arrival, breathing hardly detectable, heart beat could not be heard. Attempted intravenous, but could not raise vein. Gave 12 oz. of Calcium Chloride solution hypodermically as a last despairing effort, while administering it, I was convinced cow was dead. Before half the fluid was injected, she started to breathe, and in five minutes was sitting up perfectly conscious. From this moment she never looked back. At 9.30 a.m. she looked bright and well. By midday she was up and feeding.

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A most alarming swelling developed from the jowl down the jugular furrow to the glands at the entrance to the chest, as a result of the hypodermic administration. This increased for several days, and caused considerable discomfort and dyspnœa. It then slowly disappeared during the next six weeks.

Since this case I have given all my Milk Fever cases a routine injection of Calcium Chloride, if they are not up at my second visit two or three hours after inflation of the udder.

The second case is of interest as it does not appear to be altogether an uncomplicated one. In my student days I was taught by more than one practitioner that it was a complication due to cerebral hæmorrhage. The reaction to Calcium Chloride given below, leads us to look for another explanation of the symptoms observed.

This case was a 2nd calf Shorthorn. The day after she calved she was seen staggering about the field at 6 a.m., but the owner, who never sends for me except for animals *in extremis*, took no steps to get the cow indoors. He came for me at 10 a.m.

10.30 a.m. On arrival at the farm I could see the cow in a neighbouring field, on her side, and enormously distended. Fortunately I ran across quickly armed with a needle, before announcing my arrival, and tapped the rumen just in time, as the animal was almost at its last gasp. The cow was semi-conscious and paralysed in both hind legs. The udder was inflated, and the cow propped up on her brisket.

2.30 p.m. On getting out of my car, I could hear the cow's stertorous groaning 100 yards away. She was obviously very ill, plunging about in violent delirium, no reflex on eyeball, and with a temperature of 106. I succeeded in getting 12 oz. of a 10% solution Calcium Chloride into the jugular, and left her with a gloomy prognosis.

6.30 p.m. Owner informed me she had suddenly stopped the noisy breathing about one hour after the intravenous was given. I found the cow sitting up, quite conscious and quiet, temperature 102. Another intravenous of Calcium Chloride was given, with instructions to send for me in case of relapse.

Next morning I learned the cow had got up an hour after my evening visit, and had followed the calf into a shed. She was now recovered and feeding.

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The results of the Calcium Chloride treatment are so spectacular that there can be no doubt of the value of the treatment in saving animals in a moribund state. It suggests that the air inflation treatment may come to be superseded by some such intravenous injection as that employed here, from the outset of an attack, and at last raise our cures to a certain 100%. It should, from the sordid point of view of income, eventually bring more cases into professional hands, for an increasing number of farmers carry out their own treatment of Milk Fever with apparatus supplied by the itinerant quacks, whose bottles are so familiar to us in every cow byre.

As soon as opportunity arises I shall treat a series of cases of Milk Fever with Calcium Chloride alone. Perhaps if this has already been done, the practitioner concerned might impart his experiences to the pages of this Journal.

Otorrhœa in the Buffalo.

By M. K. GARUDACHAR, G.B.V.C.,
From the Department of Pathology and Bacteriology, Royal (Dick) Veterinary College, Edinburgh.

THERE is very little literature on this subject. Steel has devoted a few lines to the diseases of the ear, but otorrhœa is not one of them. In my practice I have found that this disease is very common. It is so common that a novice who visits herds of buffaloes may think the disease is contagious in the sense we understand mange to be. Another form of otorrhœa caused by chorioptes auricularum, var. canis, is met with in dogs; but that type is uncommon among buffaloes. I have not come across any such cases.

At Sirsi (Kanara) and at Dharwar, about forty per cent. of the animals treated were cases of otorrhœa. I noted also that it was uncommon among cattle other than buffaloes. It may be noted here that buffaloes are tropical animals and for this reason I think this disease may not have been referred to in the books published out of India.

The acute form occurs when the surrounding air is damp and chilly; therefore the acute form is not common in the dry season.

The chronic form occurs at all times of the year.

Animals up to one year old are less commonly affected than the adult.

Working buffaloes suffer more than the milch cattle for the simple reason that the latter are better cared for from a hygienic point of view.

The disease is more common in the Malnad breed (Hill animals) than among the Maidan (plain) breed. Jafrabadi breeds at times also suffer.

Predisposing Causes.

(*a*) One attack weakens the mucous membrane of the Eustachian tube and predisposes it for a second attack.

(*b*) Chill is a great predisposing cause.

(*c*) Serious infestation of ticks on the wall of the external auditory meatus predisposes the skin to be inflamed for the reason that the ticks migrate from place to place soon after they are gorged with blood in a particular locality (while syringing out with antiseptics, I frequently washed dead ticks out of the ear though none of them could be seen first unless a careful search was made). This raw wound on the skin may be a starting point for the pus forming bacteria.

(*d*) Insanitary conditions of the cattle byre as well as the dirty condition of the body of the buffalo itself.

Direct Cause.

The pyogenic cocci, when they get favourable conditions for their growth, cause pus formation in the inflamed part.

Pathology.

There is a catarrhal inflammation of the middle ear, and an inflammation of the external auditory meatus. The middle ear almost always becomes affected by direct extension of the inflammation from the eustachian tube and nasopharynx. In this case there is rupture of the membrana tympani which is caused by the discharge bursting through, this being the weakest wall of the middle ear. This rupture may cause deafness. Such a discharge tends to become chronic or an apparent recovery may be followed by a recurrence. At times pyogenic organisms find their way through the inflamed membrana tympani and give the discharge a purulent character, though it may not have been purulent from the beginning. These discharges cause eczematous excoriations on the external skin due to irritation and it is at this stage that the attention of our cattle owners is attracted to the suffering buffalo.

Symptoms.

These may be given under two headings, *acute* and *chronic*.

First Stage.

This stage usually escapes the notice of the owner.

(*a*) *Heat.* The whole base of the external ear is hot.

(*b*) *Pain.* When touched or when the rope is fastened between the base of the horn and that of the ear the animal shows great agitation.

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(*c*) *Redness.* The inside of the external ear may be reddened.

(*d*) *Swelling.* If the inflammation be very severe the whole base of the ear is swollen externally so much as to suggest an abscess formation but generally it is not swollen to such an extent. If abscess occur, the base of the ear is affected.

(*e*) *Temperature.* There is no appreciable rise of the body temperature.

(*f*) The animal feeds fairly well.

Second Stage.

Now after a period of 3-7 days a purulent discharge begins. This is thin with no offensive smell at first ; but after a course of a couple of days it becomes very offensive, thick in consistence and greyish in colour. On account of the pain the patient keeps his ears down and pus glides out of the external auditory meatus. This continued action slowly ulcerates the skin of the external ear. Thus here and there the whole of the inner surface of the ear is affected. There come into play these most annoying creatures—flies. They swarm and lay their eggs which hatch out into maggots. These begin to burrow into the walls of the ear ; sometimes from one side to the other. The poor patient, trying to throw off these irritating maggots, moves its ears restlessly and in doing so the blood that is continually oozing from the maggot-eaten parts occasionally varnishes the portion of the neck below the ear and thus here too the skin is rendered necrotic (as in the case of skin round the anus in the case of severe diarrhœa). If the case be totally neglected maggots appear here also. By this time the general condition of the body becomes unsatisfactory as the animal, on account of pain and continued irritation, does not take food as it ought to do.

Chronic.

It is generally this form that we are asked to treat because cattle owners notice this disease when excoriations, with maggots, occur. It is only a sequel to the acute form and symptoms described at the end of that form are also the symptoms of this form.

The usual and only complication (besides the excoriations already mentioned) that came to my notice is the extension of the inflammation to the middle ear when the semi-circular canals became affected the animal becomes giddy and turns round and round and falls on the affected side. This complication is known in the Karnatic as "Tiruguni Roga," meaning "a disease where the animal turns like a hinge of a door."

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Prognosis.

If the disease be taken in hand early it is amenable and can be cured within ten days. But in chronic cases it takes nearly twenty days or even more to do so. In some cases the symptoms may be temporarily abated but the disease tends to recur.

Treatment.

The following is the line of treatment I adopted and found practicable.

The animal should be kept in a dry cattle byre free from draughts. In the first stage, give a saline mixture—magnesium sulphate six ounces, potassium nitrate three drams—in drinking water. Apply stimulating liniment round the base of the ear externally *provided* there is no inflammation already. If no pus has formed syringe the ears well with potassium permanganate (1-2,000) and swab all the matter well with cotton wool. Insufflate boric acid into the middle ear. This insufflation may be done conveniently as follows :—Keep some boric powder in the centre of a small tube, made by rolling a paper diagonally (say a quarter sheet). Now this centre is to be pressed with the thumb and the next finger and one end of it is to be placed at the entrance of the external auditory canal and the other end in the mouth of the dresser. The dresser will now blow the acid direct into the ear. By doing so the drug goes right into the affected parts. If the animal is restless, this should be done after throwing. Care should be taken not to inspire while the tube is in the mouth as, otherwise, the matter will go into the mouth of the dresser. If this early insufflation is done cure follows quickly. Of course if the hospital is better equipped with apparatus for insufflation well and good. In the second stage when there is pus present the ear should be syringed with potassium permanganate lotion (1-2,000) and swabbed well with cotton wool. To remove further pus in the cavity, hydrogen peroxide (1-4) is to be syringed gently into the ear. When this is complete swab out thoroughly and put in tannate of glycerine. Subsequently, when the discharge of pus is stopped adopt insufflation of boric acid.

When there are maggots the treatment is simple as any drug like turpentine will kill maggots but I wish to emphasise here the need for observing the motto " Cleanliness is next to Godliness," otherwise the maggots will become innumerable. In all cases a good ear bandage secured by taking a twist round the horn is essential.

Country Methods of Treatment.

Of the drugs available at the Bazaar, I found garlic (Allium satium) to be one of the best penetrating antiseptics, and to give as good a

cure as any astringent lotion. The juice of this is extracted, diluted twenty times with pure hot water and syringed into the ear. On removing the pus the same drug boiled in common oil (Sesamum) (1-8) is used in the form of " drops." If there be maggots outside they are to be completely removed and then the oil is to be applied externally to the walls of the ear to keep away flies. Better still, mix this oil with the powder of sweet flag (Acorus Calamus) as the smell of this is repulsive to flies. Of course the bandage is to be used as before.

When the drugs already mentioned are not at hand in the district, these country medicines may be freely used and are often successful. Where Cowries (Kavadi) are available the burnt powder of it saturated in lime juice and then diluted with water is said to be specific, since this sea product contains calcium—a base which, in union with citric acid, produces an astringent.

Treatment for Tiruguni Roga or Affection of Semi-circular Canal.

Branding, or rather firing in a circular form is resorted to by the villagers. This is done in the mastoid regions. I think a blister would do as well.

Preventive Methods.

Advise keeping the cattle byre clean, the need for cleanliness of the animals, and freedom from draught ; the body particularly is to be kept clean.

When the animal shows any sign of pain near the ear or when it is moving its ears restlessly, examine for any pus formation and advise the owners to take immediate steps to prevent further mischief.

Country Method of Prevention.

All the professional Gowlies (cattle breeders) cut the walls of the external ear in a zig-zag way parallel with the Vertex and even remove small linear pieces of it. This is done just to avoid the daily nuisance of maggot-formation on the walls of the external ear during the discharge of pus.

Further information is required on the following points :—

(1) Whether the disease is prevalent in dry districts.

(2) Whether there is a parasitic form of this disease as found in dogs in Great Britain and on the Continent of Europe.

(3) Whether this disease is common in other ruminants.

(4) What are the Country methods of treatment and the common names of this disease, and specially those applied to the giddiness when the semi-circular canals are involved ?

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Conclusion.

Otorrhœa in buffaloes is a serious disease unless diagnosed early and treated promptly. The disease is severe in itself. The infestation with maggots adds to the misery of the animals and complicates treatment.

This article was originally presented by the writer to the Veterinary Conference at Belgaum (1920), presided over by Khan Saheb J. D. Buxy, the then Acting Superintendent Civil Veterinary Department, Bombay (to whom the writer's thanks are due). It has been revised and brought up to date. The writer desires to record his acknowledgments to Professor D. C. Matheson, Royal (Dick) Veterinary College, Edinburgh, for his assistance in preparing the article for the press.

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A Case of Canine Hysteria.

By SURGEON VICE-ADMIRAL GASKELL, C.B., F.R.C.S., L.R.C.P., D.P.H.

THE patient, a field spaniel, male, 8 years old, which had been in my possession since October, 1923, was trained to the gun. The animal appeared rather timid in disposition, but was taken shooting about once a week throughout each season. General health was good. The diet was dog biscuit and household scraps. He slept in a dry and large kennel in the yard, but spent the day with us in the house or out of doors. His only illnesses were lice and ticks and some eczema, which disappeared after the lice and ticks were destroyed and the diet restricted to raw meat and biscuit.

In early December, 1928, while shooting in a thick wood near Cranleigh, Surrey, he suddenly started to bay loudly with his head in the air and his pupils widely dilated, the expression on his face being one of intense excitement. He stared up in my face as if wanting to tell me of something very exciting in the bracken. I thought he must have come face to face with a fox, so I just quietened him down and very soon we went on again as if nothing had happened. Later in the afternoon we came near the same spot and he went into the cover and again started this loud baying noise.

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Before I could get to him he bolted off at a tremendous speed. He was soon out of sight and in spite of searching for him for about two hours right on into the darkness and giving him my special whistle and call and letting off my gun, we failed to find him.

He was missing all that night with thick snow on the ground and about 16 degrees of frost. We left word at all neighbouring cottages and police station to be on the look out for him.

Next morning, accompanied by a notorious old local poacher, we went to the wood. The old man told us to keep to the pathways and he would search the wood near where we last saw him. In a few minutes he called out, " Why, there he is," and out came Ben into the ride rather stiff, wet and dishevelled, but none the worse for his night out. We were so overjoyed at finding him alive that unluckily we made no inquiries as to exactly where he was when found, but our friends hinted that probably he had been caught up in a noose laid by the poacher.

I did not at that time know anything of canine hysteria except merely the name. For a whole year since this attack the dog has been very healthy, but his abnormal slowness and somnolence have remained. He has lived in London except for holidays in Cornwall, and this season he has had very little shooting.

Early in December, 1929, while at a shoot near Horsham he was walking with me in the flank of the beaters when again he came out of the bracken, stared up in my face, and again bayed loud and long and then bolted. Again he was lost all night. He was reported as having returned to the keeper's cottage about half an hour after he bolted, and appeared quite normal and was friendly with the children.

They drove him out as they thought he belonged to someone passing in the road. He was found about 2 miles further on, on the main road, and taken to the police station. When we got him about twenty-seven hours after he was lost, he appeared rather stiff and tired and hungry and his chin was rubbed as if from rubbing it on the ground in trying to find my scent.

The fact that his first attack did not render him immune from further attacks is against the disease being an infectious disease.

The disease has some resemblance to human " running epilepsy " or *epilepsia cursiva*. The fact that Ben remained in his usual good health for a whole year before he had his second attack emphasises the danger of attributing a cure to any particular treatment. He had no treatment after his first attack and yet appeared to get quite well. The theory that it is a deficiency disease is slightly strengthened by the fact that Ben has appeared more lively since his raw meat ration and

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number of meals *per diem* have been increased. The absence of any *post-mortem* gross lesion rather strengthens the view that the disease is simply epilepsy.

Bacillary White Diarrhœa.

By G. MAYALL, M.R.C.V.S.,
Bolton.

THIS disease among chicks has been very prevalent here this spring. It takes a heavy toll of the fledglings, a mortality rate of 95 per cent. being common. Commencing in the egg of the carrier hen the hatched chicks spread the infection through their droppings and contaminate incubators, brooders and pens. Just as destruction of cows over a certain age lessens the incidence of tuberculosis, so the killing off of fowls over two years old will lessen both tuberculosis and bacillary white diarrhœa among them. It is questionable whether it is worth while treating B.W.D. in chicks and perhaps those with pasty vents should be killed off at once as free chicks may peck the vents of ailing ones and so contract the disease. The American method of covering the floor of the pen with wire work helps to prevent the infection through the droppings and of course the battling brooder is designed with the object of preventing all fæces infecting diseases. A point, however, against it that practical poultry keepers have mentioned to me is that the chicks are apt to get their heads through the wires and rub off their neck feathers.

In 1908 Graham described (*Ontario Agric. Bulletin*) hard white nodules that he had found in the lungs of 50 per cent. of chicks dying of B.W.D., and Spray and Doyle also described pulmonary nodules in 1921, and in 1925 Beaudette refers to them and mentions the heart also as being nodular.

During March and April of this year we have made *post-mortems* on 36 cases of B.W.D. and have found nodules in every case but one. In two cases there were nodules on the lungs, heart and gizzard, in 16 cases on the lungs and heart, in one case on the gizzard only, in two cases on the heart only, in 14 cases in the lungs only, and in one case no nodules.

As showing the widespread character of the disease we may mention that the chicks came from the following counties :—Shropshire, Warwickshire, Leicestershire, Fifeshire, Yorkshire, Derbyshire, Norfolk, Suffolk, Gloucestershire, Hampshire, Staffordshire, Cumberland, Leicester, Berkshire, Stirling, Monmouth, Surrey, Devon, Somerset, Cheshire, Inverness, Dublin and Oxford.

When one considers that the number of fowls in this country increased from 39,491,000 in 1928 to 42,752,000 in 1929, it shows what great room there is for the prosecution of poultry pathology.

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Humane Work in Syria.*

By THE HON. MRS. CHARLTON.

WHEN in October, 1929, the desolate animals of Damascus, the oldest surviving city in the world, were first brought within the protective and remedial activities of modern humane endeavour, small hope was held of any spectacular progress or immediate results. In the strenuous days of our humble commencement, the assured position now attained by the Société Protectrice des Animaux en Syria, was undreamed of, or the success that has attended our determined struggle against age-old and inhuman cruelties. With some exceptions the heart of the populace remains unchanged; and the victory has been won by strict application of the existing excellent laws for the protection of animals, and by the new municipal regulations, which came into operation on the 2nd January, 1930, and empower us to take further action in many necessary quarters.

A copy of these municipal regulations, stamped with the seal of the administration, is now in the possession of the R.S.P.C.A., and this code is based primarily upon the law, and secondly upon a petition addressed by me to the Governor of Damascus in September, 1929, in which many evils from which the animals suffered were separately dealt with and remedies suggested.

By these regulations the beating or torture of draught animals is strictly prohibited, and at my request the Government have called in all the heavy whips, which will shortly be burnt at the Municipality. The Syrian carter's whip is a terrible weapon, which in the past has often cut long lines of blood on overloaded animals. Brakes are now obligatory on all tombors (native carts), no animal may be driven without a bridle, and the age of carters has been raised to twenty years, thus eliminating the services of young ruffians aged ten and twelve years, who subjected the animals to a ceaseless barrage of assault and battery. Harness and carts must be kept in good repair, animals must be kept clean, and if ill must be taken by their owners to the qualified veterinary surgeon at the Government's hospital; and a much-needed caution is conveyed in the new regulations against the ministrations of quacks, whose dirt, neglect and cruel operations often preclude all chance of recovery.

Damascus is daily patrolled by eight agents and voluntary workers, and though overloading is perpetual, the burdens are reduced, lame and ailing animals conveyed to hospital, and the sound of our police whistles is as well known as the cry from the mosque. Painted plaques —green for the holy colour—bearing the inscription in Arabic, " Have pity on animals," have been affixed to the walls of ancient mosques

* From *The Animal World*, May, 1930.

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and schools, and have been placed in all main thoroughfares; thus broadcasting the creed of a new humanity, even into the desert beyond.

The baiting and torture of wild animals which was rampant during the last Ramadan, has been entirely suppressed in this annual national observance (now in progress), the authorities having undertaken that no booths should be licensed for such a purpose.

Far more remains to be told of the forlorn hope that could not have been won without the co-operation of the police; and there is now no constable in the Damascus force who is unaware of his responsibility in regard to animals; or that indifference in their regard has already entailed dismissal.

Space is limited, but some final words must be devoted to the proposed foundation of a Veterinary Hospital at Beyrouth, where the treatment of animals is unspeakably inhuman, and the work of their protection requires organising on a far wider basis. No clinic exists at present for the reception of the many shattered sufferers requiring rest and medical attention. Animals with broken limbs and shocking injuries lie in barren fields, or in the open streets, often days without food or water, until death ends their misery.

An influential meeting of an international character, at which the French High Commissioner and the general officer commanding French troops in Syria, were both represented, has just been held in Beyrouth to advance this object. The plans of the hospital are ready, and the sum of £450 now in the Banque de Syria et du Grand Liban, at Beyrouth, confided to me by subscribers in England in aid of the suffering animals of Syria, is also ready. But the project will involve an expenditure of £1,000. The remaining £550 will soon be raised, for whilst thanking the kind and unknown friends, whose former generosity made the inception of this scheme a possibility, there are many who will yet help to bring into being a real shelter for the battered creatures of Beyrouth, whose unmerited misfortunes will weigh on their hearts, as they do upon my own.

A statement of accounts will be offered later, and as the R.S.P.C.A. has kindly consented to receive and forward funds contributed, will all who long to make a better world for animals respond to this urgent appeal in order that the hospital may be founded at once?

It is hoped that not only will this Institution be established as a refuge and respite for hosts of the suffering animals of this country for ever, but that it may also become a base and sheet anchor for all further humane advance in Syria, *where cruelty can only be alleviated by the labour of veterinary clinics*,* and restricted by the fearless application of the excellent existing law.

*The italics are ours.—Ed.

Animals in Iraq.

THE R.S.P.C.A. is frequently approached by inquirers desiring to know what is done for the protection of animals in Iraq. The occasion of the appointment of the new High Commissioner, Sir Francis Humphreys, was seized by the Society for the purpose of making representations to His Excellency about one of the important problems for which this country accepted responsibility when it undertook a mandate for Iraq.

An exceedingly sympathetic reply has been received, reflecting the greatest credit not only on the High Commissioner personally but on those who form his secretariat and who appear to be fully alive to the position.

Anyone who knows this territory cannot but be struck with the fact that animals occupy a very lowly place in the esteem of some of the inhabitants. There is much thoughtless and even deliberate cruelty. The High Commissioner, with a courage born of a desire for better things, frankly admits that cruelty is as extensive as it is in most Oriental countries. "The Police and Veterinary Departments, which have other duties to attend to, do not possess sufficient resources to deal with the question as effectively as they would wish. It is true that these bodies make every effort to prosecute individuals responsible for the maltreatment of animals and to cure those animals that have suffered by such cruelty. Under the Baghdad Penal Code, promulgated in November, 1918, cruelty to animals is an offence punishable by fines or imprisonment. When arrests are made for infractions of this law, the animals concerned are taken to the nearest veterinary hospital, where they are examined and reported upon by the Veterinary Officer in charge. Injured animals are detained and treated at the owner's expense, but, the unfortunate fact remains that accommodation in these hospitals is often so restricted that it is frequently necessary to refuse admission to cases for that reason alone.

The Iraq Government are by no means satisfied with the present state of affairs but they consider, in the present stage of development of that country, measures for the protection of animals can best be carried out by the Police and the Veterinary Authorities. They have had the foresight to see that the inhabitants can be brought to a better understanding of animals' needs by the vital educating factor of veterinary hospitals, the work of which is of much more benefit to the inhumane owners of the patients than one often imagines. To help in this very pressing need the High Commissioner will gladly accept financial support from anyone interested and all such monies would be administered by the Director of Veterinary Services who would devote them to such objects as the provision of special dressers for cruelty

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cases in the principal towns and for the supply of medicines.—(*The Animal World*, April, 1930.)

Obstruction of the Œsophagus in a Mare.*

By MESSIEURS BAQUÉ AND LAMARQUE.

A MARE in excellent condition was bought by the Remount Committee of Tarbes. When just put in the stable she got hold of a wisp of hay and swallowed it without masticating. Soon she tried to vomit, broke her halter, turned round in the stall and was greatly upset. Immediately notified, we found her stiff on all four legs and the front ones wide apart, the head extended on the neck and the face drawn. There was ptyalism, profuse sweating, muscular tremors, laboured breathing and violent efforts at regurgitation. The muscles of the neck were contracted, the œsophagus showed undulations, the animal shook her head and threw out frothy saliva from the mouth and nostrils.

On palpation the pharynx and œsophagus were hard and tense; their exploration caused violent œsophageal spasms, on auscultation valvular noises. The mare obstinately refused water, temperature normal, pulse quickened.

To calm œsophagisums two injections of atropine sulphate were given in the afternoon. The spasms declined, the disturbing symptoms lessened gradually; the mare was left at liberty in a box watched by a military attendant.

Next morning animal dejected and refused all food and water; temperature normal, pulse regular. Pharynx and œsophagus still sensitive but palpation caused no spasms. Frothy saliva still coming from the nose. It was not possible to reveal the wisp of hay on account of pharyngisums and œsophagisums.

During the day she improved and in the afternoon took some water and a little warm mucilaginous mash.

Next day very little nasal discharge. The following day normal. The treatment by sulphate of atropine gave an excellent result.

Eleventh International Veterinary Congress, London, 1930.

THE International Veterinary Congress to be held at the Central Hall, Westminster, London, S.W.1, from the 4th to the 9th August, 1930, is receiving support from foreign governments in all parts of the

* *Recueil de Med. Vet.*

world. Official delegates have already been appointed by the following countries :—

CANADA, NEW ZEALAND, COMMONWEALTH OF AUSTRALIA, SOUTH AUSTRALIA, WESTERN AUSTRALIA, UNION OF SOUTH AFRICA, IRISH FREE STATE, NORTHERN IRELAND, GOLD COAST, KENYA, UGANDA, TANGANYIKA TERRITORY, NORTHERN RHODESIA, SOUTH AFRICAN HIGH COMMISSION TERRITORIES, SWAZILAND, NIGERIA, MALAY STATES, STRAITS SETTLEMENTS, IRAQ.

ALBANIA, AUSTRIA, BELGIUM, CHINA, DENMARK, ECUADOR, FINLAND, GERMANY, GREECE, GUATEMALA, HOLLAND, LATVIA, NICARAGUA, NORWAY, ROUMANIA, SWEDEN, TURKEY, U.S.S.R., VENEZUELA, YUGO-SLAVIA.

In addition to the scientific work of the Congress, there will be arranged a number of excursions to Research Institutes, Veterinary Colleges, Racing and Breeding Establishments. These will take place during the week following the Congress.

On Sunday, August 3rd, there will be a *reception* in the evening (with music and refreshments) free to all members at the May Fair Hotel.

The Opening Meeting which will be attended by the Minister of Agriculture will be held in the morning of Monday, August 4th, and thereafter General Meetings will be held each forenoon and four Sectional Meetings will be held simultaneously each afternoon.

On Tuesday evening, August 5th, there will be a *Conversazione* at the Natural History Museum, South Kensington, to which all members will be invited. There will be music and light refreshments.

On Wednesday evening, August 6th, the British Government offers a *Banquet* to officially appointed Delegates, not exceeding 200 in number. The Minister of Agriculture will preside.

On Thursday evening, August 7th, there will be a *Banquet* at the Connaught Rooms, Great Queen Street, London, W.C.2, open to all members. The price of the Dinner inclusive of wines will be 25 shillings.

On Friday evening, August 8th, there will be a *Reception* given by the Lord Mayor and Corporation of the City of London at Guildhall. Special invitations will be issued to a limited number of members for the function.

Fourth World Poultry Congress, Crystal Palace, London, July 22nd to 30th.

THE originator of the World Congress idea is the World's Poultry Science Association, a body that grew out of the International Associa-

tion of Poultry Instructors and Investigators, established in London in the year 1912, on the initiative of Dr. Edward Brown, by the representatives of twenty countries, for the furtherance of the general interest of the industry on the research side. The W.P.S.A. has upwards of half a million members to-day, one six figure membership being resident in the United States and another in Germany ; it keeps in touch, as its name would suggest, with the work of scientists and investigators the world over. Dr. Brown, in full concert with those responsible for the Association, came to the conclusion that it would be advisable in the best interests of progress to hold an International Poultry Congress once every three years, in order that the latest fruits of research and investigation may be available to followers of the great industry all over the world, and that the latest knowledge may be pooled. In all probability the organisers did not realise how large and immediate would be the response to their initiative. The Hague, Barcelona and Ottawa have each held a Congress on a gradually expanding scale and it looks already, in April, 1930, as though all records will be beaten at the Crystal Palace in July next.

The Growth of the Wholesale Egg Trade.

The history of the London Egg Exchange is a record of commercial progress and of the evolution of an industry. It was established nearly 70 years ago, when some four importers used to meet weekly in the parlour of a public-house in the Borough. From these modest beginnings came market desks in the Market itself, and then, because the other interests objected, an egg market was held on Mondays in the Hop Exchange. After that, premises were secured at the corner of Stoney Street and Borough Market, and in 1890 a Company called the London Egg Market was registered and an annual subscription became payable by those who used the Grand Hall of the Hop Exchange, either as buyers or sellers. In 1921 the Exchange suffered from fire, but when it was reconstructed, the London Egg Market returned, and in 1924 became the London Egg Exchange. It meets every Monday between 11 a.m. and 1.30 p.m., and has a couple of hundred members.

Stock Poultry for Export.

One of the aims of the British Poultry Industry should be the recovery, through its display at the Fourth World's Congress at the Crystal Palace, of a declining export trade in stock birds. Although poultry breeders the world over are out for the best strains and are ready and able to pay for them, it is an unpleasant fact that our export trade in pedigree poultry has declined by more than fifty per cent. since 1913. Our pedigree horses, cattle, sheep and pigs retain their

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hold on the world's affection, they travel all over the world and are received as honoured guests, but our poultry have not maintained their place, though it is common knowledge that the decline is not due to any defect in the birds themselves. Figures are significant. In 1913 we exported 54,000 live birds, of which 48,000 went to foreign countries, and the balance to the Empire. In 1928, our export to foreign countries had fallen to 8,000, though even this low figure was the best since 1923, and our figure to British countries was 12,000, a marked decline on the figures for four previous years. The Congress will show our home-reared birds in their proper light and demonstrate their claim to consideration wherever it is desired to establish a pedigree flock.

The "National Mark" Egg.

This only became effective in 1929 when, as a result of the system, the organisers claim that British poultry keepers took £1,500,000 more than they handled in 1928 and the import of foreign eggs fell by 200 million. The National Mark Eggs have but one quality where freshness is concerned and three weight grades. The minimum weights of Special (blue label), Standard (red label) and Pullet or Ducklet Standard (yellow label) are $2\frac{1}{4}$, 2 and $1\frac{3}{4}$ oz. in the case of hen eggs, and $2\frac{3}{4}$, $2\frac{1}{2}$ and $2\frac{1}{4}$ in the case of duck eggs.

Reviews

Fleming's Veterinary Obstetrics: Including the Diseases and Accidents Incidental to Pregnancy and Parturition. Fourth Edition revised by Principal J. F. CRAIG, M.A., M.R.C.V.S. Demy 8vo, pp. 552+viii, with 167 plates. Price 18/- nett. London. Baillière, Tindall & Cox.

When a veterinary text book has reached the stage of being a Fourth Edition it is proof positive that it must have been very highly appreciated by those for whom it is written, and Fleming's "Veterinary Obstetrics" is one of the best instances of this kind.

The First Edition was published in 1877 and was largely a modified translation from the French work by St. Cyr; Dr. George Fleming, the author, being at that time stationed with his regiment in London, and the Second Edition was not needed until 1895. A Third Edition, some years later, was edited by Professor J. Macqueen, and now a Fourth Edition has been launched after careful revision at the hands of Principal Craig. Certain chapters have been added and paragraphs rewritten or deleted, and the book can be said to be right up to date in modern ideas of antiseptic and manipulation methods. Especially is this noticeable in the chapters dealing with such diseases as Abortion, Pregnancy Disease of Ewes, and Acetonæmia of Cattle.

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In some twelve chapters the whole matter of obstetrics is dealt with, from the anatomy of the pelvic and abdominal region, the physiology and normal pregnancy, and the clinical and pathological aspect of mal-presentations, dystokia, and such like ; whilst operations such as those of hysterectomy and ovariotomy in all animals—large as well as small—are fully described in detail.

Clearly and lucidly written, and in the usual neat binding so characteristic of Messrs. Baillière, Tindall & Cox, we can thoroughly recommend it to our readers as a book of the greatest value to the student and one which should be on every practitioner's bookshelf as a work of reference.

Diseases Transmitted from Animals to Man. By THOMAS G. HULL, with introduction by VERANUS A. MOORE. Pp. 350+xi. Price 25/- nett. London. Baillière, Tindall & Cox.

The subject of the diseases which man can take from animals has been well in the limelight during the past fifteen or twenty years, and text books on the subject are illuminating.

Mr. Thomas Hull has had especial facilities for the study of this subject, as he occupies a high position in the American Public Health Service, and his grouping of the diseases is interesting. Section I is devoted to the "Diseases of Domestic Animals and Birds," and includes Tuberculosis, Anthrax, Foot and Mouth, Actinomycosis, Glanders, Rabies, Contagious Abortion, Swine Erysipelas, and Psittacosis. Section II is devoted to the affections of Rodents, such as Plague, Tularemia, Spirochetal Jaundice, and rat bite fever ; whilst in Section III there are brought forward the human diseases spread by animals. Diseases, for instance, such as Diptheria, septic sore throat, scarlet fever, can all be carried by attendants and need not necessarily infer direct infection. They can readily be carried by carelessness and neglect of disinfection. Botulosis, Tetanus and Gas Gangrene are dealt with in Section IV, whilst Section V reviews the part played by respective species of animals in the spread of disease, not only to mankind, but amongst the beasts themselves. The book is in very readable form, well bound and in clear type, and should be at hand for easy reference on every practitioner's consulting room table.

The Principles of Bacteriology and Immunity. By W. W. C. TOPLEY and G. S. WILSON. 2 vols. Pp. 1,300+xv+xx. Price 50/-. London : Edward Arnold & Co.

THE writer of this review is frequently asked by graduates and students in veterinary science if he can recommend a good book on bacteriology which will answer their requirements. To graduates requiring a book written in the English language the invariable answer has been in the negative ; while students on their first introduction to bacteriology have been encouraged to place reliance upon medical rather than upon veterinary "text-books of bacteriology." There is little of value to be gained from an inquiry into the reasons why English-speaking veterinary bacteriologists have not as yet produced a text-book worthy of general acceptance ; the qualifications required of the author of a text-book of bacteriology are not his membership of this or that profession but his intimate knowledge of bacteriology as a pure and applied science. Upon such knowledge, strengthened by the assistance of several colleagues of the London School

of Hygiene and Tropical Medicine, including R. Lovell, M.R.C.V.S., D.V.S.M., Topley and Wilson have written their work.

The work was written for post-graduate students taking a full-time course in bacteriology leading to a diploma in public health, in tropical medicine and hygiene, or in veterinary state medicine ; but it will prove the standard reference book for all of the veterinary profession—teachers practitioners, officers R.A.V.C., and government inspectors. It will be found that Topley and Wilson have given the veterinary *graduate* the book he has long desired, the best book he can buy.

Is it the best text-book at present available for *undergraduate* students of veterinary science ? Yes ; the student should have the best procurable, he should study his subject on the right lines from the outset of his course even though his reading of these volumes, unless directed by a sympathetic teacher, should lead to mental indigestion. He will find no description of technique, no little tit-bits to be acquired purely for examination purposes —these he should acquire from practical experience in the teaching laboratory and *post-mortem* room. But he will be presented with a comprehensive survey of the science of bacteriology, written for the greater part as a fascinating series of detective stories which will stimulate his critical faculties even though they do not uphold the infallibility of the detective. Fifty shillings is a luxurious price for a student's text-book for one year's service, but very reasonable for a work which for several years should prove a friend and director.

The pure science of bacteriology occupies the first volume (Parts I and II) ; its application to disease and commerce makes the second volume (Parts III and IV) of particular interest to the clinician and hygienist. The interesting narrative of the historical development of bacteriology proves a most heartily appreciated cocktail preceding the somewhat heavy menu including accounts of the general properties of bacteria, how they live, propagate and die, and what may happen when they are mixed with body fluids in a test-tube. Throughout Part II the bacteria are systematically described under the nomenclature recommended by the committee of the Society of American Bacteriologists (1920) and now widely adopted in the teaching institutions of this country. Part III describes the mechanism of infection and resistance, and includes a chapter on herd infection and herd immunity, a problem with which Topley is intimately acquainted. Part IV deals with the application of bacteriology to medicine and hygiene, the absorbing interest of which occupied a disproportionately large amount of the time available to the reviewer. The epidemiology, experimental and natural transmission, diagnosis, and prophylaxis of related diseases both of man and animals are clearly and adequately presented.

Conveniently arranged tables and charts add materially to the value of the text, and the indices of each volume have satisfied all tests made in the course of review. The quality of the printing and appointments of the volumes is in keeping with the excellence of the subject matter.

Each chapter, of which there are eighty-five, is supplied with a bibliography. In their preface the authors state that their selection of publications has been somewhat arbitrary, but there is little enough evidence of their having overlooked the important contributions to veterinary literature. One oversight is Sir Arnold Theiler's work on lamziekte ; the

disease is named but not described under the title of botulism. Leptospiral jaundice of dogs is dismissed in one sentence; its relationship to Weil's disease and the value of canine leptospiral antiserum are not discussed. Fish poisoning (Klauder, Righter, and Harkins. Arch. Dermatol and Syph 1926. xiv. 662) might have been included in the chapter on swine erysipelas. Just before receiving these volumes for review the present writer had analysed (for the Medical Annual, 1930) the evidence for and against the infection of cats with the diphtheria bacillus and had concluded that Savage's contention was not justified; at least the categorical statements in Chapter 59 might be modified. Before the second edition is published the authors may not find it unhelpful to invite a veterinary pathologist to repair some small defects in incidence and morbid anatomy, particularly of Johne's disease and tuberculosis.

The writer feels that his few minor criticisms have already occupied a disproportionate amount of his space, which he would rather devote to praising the best book on the subject for the English-speaking veterinary surgeons. We hope Topley and Wilson will accept our gratitude, our congratulations, and our best wishes for the success of their great work.

T. H.

Tierheilkunde und Tierzucht. Stang & Wirth. Vol. V. GRANULOM KANDAHARISCHES PFERD. Pp. 720 with 205 figs. in the text, 6 coloured and 49 black plates. Urban & Schwarzenburg, Berlin and Vienna. 1928. 33 marks, bound 40 marks.

THIS volume is in no way less valuable than its predecessors. It contains fifteen pages devoted to the illustration and description of the horses, cattle, sheep, pigs and goats of Great Britain and Ireland. The illustrations are excellent and many of them are taken from G. Mayall's books on Cows, Pigs, Sheep and Goats. There are 28 pages on the dogs of the world and here again there are some interesting illustrations. Sections on infection and immunity and the hypnosis of animals appear in this volume. Animal life and breeding in Japan is discussed and examples given. The hill cattle of Europe which inhabit high lying districts and are wide spread in Switzerland, Austria, Germany, Italy, France and Scandinavia, are well described in 96 pages. Their value and economic importance to the countries named are very great as they not only supply milk and flesh but a great amount of agricultural work is carried out with their help. This section is very strong in illustrations. Among short biographies in the book we notice those of Thomas Gray, Nehemiah Grew, Michael Harward, and Edward Jenner, all countrymen of ours and old-time pioneers in the pursuit of scientific knowledge. There is an illustrated communication on camels and another on animal life in Italy. The animal " hoof " takes up 90 pages of letterpress.

One cannot give anything but praise to the work of the two authors and they are well blessed with their publishers.

Personal

The Annual Dinner of Officers of the Royal Army Veterinary Corps, past and present, will be held at the Hotel Victoria on Friday the 13th June, 1930, at 8 p.m.

Gentlemen desirous of attending should inform the Honorary Secretary, R.A.V.C. Dinner, War Office, Whitehall, S.W.1.

MR. J. MCARTHUR, M.R.C.V.S., has been appointed Veterinary Officer to Northern Rhodesia.

Old London students will regret to read of the death of MAJOR ALEXANDER GOODALL, F.R.C.V.S., late of the S.A.V.C. (Union Defence Force), Assistant Principal Veterinary Officer to the Department of Agriculture in Pretoria, and Lecturer in Veterinary Hygiene to the University of S. Africa. Graduating in 1902, the son of a well-known member of the Examining Board, Mr. Goodall joined his father in practice at Christchurch, Hants, but within a few months obtained an appointment in the S. African Veterinary Service. His progress was steady until, in 1924, he was appointed Assistant Principal Veterinary Officer for the Union. During the Great War, Mr. Goodall served in the German South West campaign, having been promoted to the rank of Major in the S. African Veterinary Corps. His loss will be greatly felt as he had just attained an age (49 years) at which mature judgment can assert its value to the best advantage—especially when the possessor of these qualifications is a popular and efficient administrator.

Congratulations to that Grand Old Man of the profession, MR. HENRY GEORGE LEPPER, Deputy Lieutenant of the County of Buckinghamshire, on his great popularity which made him the central figure (on his 80th birthday) of a congratulatory body of sincere friends who subscribed to celebrate the event by the presentation of a suitably engraved silver salver and an album containing a list of his admirers. Mr. Henry Lepper's marvellous vitality and genuine geniality are too well known to his friends in the profession to need to be expatiated upon, and one and all wish him a continued good health to enable him to " carry on " for many years to come.

The Irish Free State Fresh Meat Act, which has been recently drawn up, has a clause inserted whereby the use of the humane killer is compulsory for the slaughter of cattle.

A veterinary clinic for the sick animals of the poor has been established at the old University veterinary school, Parkville, Melbourne, Australia.

Errata

Page 145.

Line 14—" *past* " should read " *part.*"

Line 24—" *Figs.* 1 *and* 2 " should read " *Fig.* 2." (" *Fig.* 1 " needs deleting.)

Page 147.

Bottom line—" *Fig.* 3 " should read " *Fig.* 1."

KANSAS STATE AGRICULTURAL COLLEGE
Jun 25 '30